

REMARKS

Figs. 1-5 of the drawings are amended to enter a few missing reference numerals, e.g., 5, 12 and 30 and adjust some lead lines and it is respectfully submitted that no new matter is entered by the same. The accompanying new set of Replacement Sheets of formal drawings incorporate all of the requested drawing amendment. If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Claims 16 and 17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejection(s) and are not directed at distinguishing the present invention from the art of record in this case.

Next, claims 11, 15, 19 and 20 are rejected, under 35 U.S.C. § 103 (a), as being unpatentable over Avitan '598 (U.S. Patent No. 5,128,598) in view of Nieminski et al. '839 (U.S. Patent No. 4,513,839); claims 16 and 17 are rejected, under 35 U.S.C. § 103(a), as being unpatentable over Avitan '598 and Nieminski et al. '839, as applied to claims 11, 15 and 20 above, and further in view of Oldakowski '018 (U.S. Patent No. 5,121,018); while claim 18 is rejected, under 35 U.S.C. § 103(a), as being unpatentable over Avitan '598 and Nieminski et al. '839, as applied to claims 11, 15 and 20 above, and further in view of Burenkov et al. '809 (U.S. Patent No. 4,234,809). The Applicant acknowledges and respectfully traverses all of the raised obviousness rejections in view of the above amendments and the following remarks.

The Applicant thanks the Examiner for indicating that claims 13 and 14 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claim(s). In accordance with this indication, claims 13 and 14 are amended to be independent claims and both of those amended independent claims are now believed to be allowable.

The present invention relates to a wheel drive for an industrial vehicle. The wheel drive comprises a first electric prime mover 1 driving an output 6 *via at least one spur gear transmission* 4 in a desired direction of traveling which is coupled to a drive wheel 7, and a second electric prime mover 8 which drives a drive shaft 9, coupled with the output 6, such that rotation of the drive shaft 9 facilitates steering of the output 6.

It is respectfully submitted that the inventive aspect of the present invention does not merely relate to the inclusion of a brake 19, but more specifically relates to the arrangement of the brake 19 for braking the drive wheel 7. In particular, *the first electric prime mover 1, the second electric prime mover 8 and the brake 19 are all disposed co-axially with the drive shaft 9 of the second prime mover (8) and contained within a common housing with the second electric prime mover (8) being located vertically below the first electric prime mover (1) and the brake 19 is specifically located between the first prime mover 1 and the second prime mover 8*. In addition, the drive shaft (2) of the first electric prime mover (1) extends longitudinally through an interior of the drive shaft (9) of the second electric prime mover (8)—see new claim 21. Such arrangement results in a compact design for a wheel drive for an industrial vehicle.

Turning now to Avitan '598, this reference relates to a steer/drive control system for steering an industrial vehicle by the use of a directly coupled traction motor 12 and steering motor 21. The steer/drive control system comprises a steer motor 21 coupled with a traction motor 12 rotationally driving a drive unit 16 to facilitate driving and steering of the drive wheel 17. The precise location of the drive shaft for the traction motor 12, according to Avitan '598, is not specifically shown in any of the drawings, but the drive shaft and the traction motor 12 may arguably be arranged coaxial with respect to one another. Nevertheless, the disclosed arrangement of Avitan '598 does not appear to disclose any type of drive shaft for the second prime mover 8. That is, according to Avitan '598, the steer motor 21 is constructed as a hollow shaft dc motor, whose outer stator 14 is attached to the frame 15, and whose inner rotor 13 is attached to the traction motor 12. As a result of this, the steer motor 21 is directly coupled with, and rotationally drives the entire traction motor 12 and such coupling, according to Avitan '598, eliminates the prior art pinion gear 23, the gear reducer 22, the master gear 25 and the drive chain 27, as well as the speed sensor 29, which is now incorporated into the steer angle sensor 10 of the traction motor 12 (see column 3, lines 22-56).

In addition to the above, the disclosed arrangement of Avitan '598 does not appear to disclose a brake which is co-axial with both the traction motor 12 and the steering motor 21 and located between the first prime mover 1 and the second prime mover 8, as presently claimed. Further, as noted above, the steering motor 21 surrounds the traction motor 12 and does not appear to be contained within a common housing vertically below the traction motor 12, which is contrary to the presently claimed invention.

Turning now to Nieminski '839, this reference arguably relates to a brake system for vehicles having a motorized drive wheel driven by a vertically mounted electric motor via a gear train. It is noted that Nieminski '839 arguably discloses a brake system comprises a brake disposed co-axially with the motor but the brake is specifically disclosed and taught as being *positioned vertically above a motor 14* which drives a drive shaft 15 and facilitates the driving of a drive wheel 13 of the vehicle. It is to be noted that there does not appear to be any steering motor in Nieminski '839 arrangement, as with the presently claimed invention.

In view of the above discussion concerning the applied references of Avitan '598 and Nieminski et al. '839, it is respectfully submitted that it would not have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the wheel drive of Avitan '598 such that a brake, for braking the drive wheel, would be located co-axially with the drive shaft 9 of the second electric prime mover 8--let alone the brake being specifically located between the first electric prime mover 1 and the second electric prime mover 8, as presently claimed.

Moreover, since Avitan '598 relates to an arrangement in which the steering motor 21 generally comprises a steer motor 21 which is constructed as a hollow shaft dc motor, whose outer stator 14 is attached to the frame 15 and whose inner rotor 13 is attached to the traction motor 12, it is respectfully submitted that Avitan '598 fails to in any way teach, suggest, disclose or remotely hint at "the first electric prime mover (1), the second electric prime mover (8) and the brake (19) all being disposed co-axially with the drive shaft (9) of the second prime mover (8) and contained within a common housing with the second electric prime mover (8) being located vertically below the first electric prime mover (1), as presently claimed. Further, as noted above, the brake disc in Nieminski '839 is *positioned vertically above the motor 14*. Therefore, if the brake of Nieminski '839 were to be properly combined with the wheel drive of Avitan '598, it is respectfully submitted that the resulting combination would be a brake located *vertically above the prime mover and not a brake located between the first and the second prime movers*, as presently claimed.

If the Examiner maintains that there is still an explicit or implicit teaching or suggestion in the prior art, he/she must indicate where such teaching or suggestion appears in the applied references. *In re Yates*, 663 F.2d 1054, 211 USPQ 1149, 1151 (CCPA 1981). "The mere fact that a certain thing may result from a given set of circumstances is not sufficient [to establish inherency.]" *In re Ulric*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981) (citations omitted).

It is too well settled for citation that references may be combined for the purpose of showing that a claim is unpatentable. However, they may not be combined indiscriminately, and to determine whether the combination of references is proper, the following criterion is often used: namely, whether the prior art suggests doing what an applicant has done. It is not enough for a valid rejection to view the prior art in retrospect once an applicant's disclosure is known. The art applied should be viewed by itself to see if it fairly disclosed doing what an applicant has done. If the art did not do so, the references may have been improperly combined." *In re Shaffer*, 108 USPQ 326, 328, 329 (CCPA 1956). As mentioned above, it remains unclear as to what combination of the cited prior art references would have been obvious to the inventor of the current invention.

The Applicant acknowledges that the additional references of Nieminski et al. '839, Oldakowski '018 and Burenkov '809 may arguably relate to the features indicated by the Examiner in the official action. Nevertheless, the Applicant respectfully submits that the combination of the base reference of Avitan '598 with the additional art of Nieminski et al. '839, Oldakowski '018 and/or Burenkov '809 still fails to in any way teach, suggest or disclose the above distinguishing features of the presently claimed invention. As such, all of the raised rejections should be withdrawn at this time in view of the above amendments and remarks.

In order to emphasize the above noted distinctions between the presently claimed invention and the applied art, the independent claims of this application now recite the features of "a first electric prime mover (1) having a drive shaft (2) driving an output (6)...a second electric prime mover (8) driving a drive shaft (9) being coupled with the output (6) such that by rotation of the drive shaft (9) of the second electric prime mover (8), the output (6) rotates in a desired direction to provide a desired steering motion for the wheel drive; a brake (19) for braking the drive wheel (7); the first electric prime mover (1), the second electric prime mover (8) and the brake (19) all being disposed co-axially with the drive shaft (9) of the second prime mover (8) and contained within a common housing with

the second electric prime mover (8) being located vertically below the first electric prime mover (1); and the brake (19) being located between the first prime mover (1) and the second prime mover (8)." Such features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Avitan '598, Nieminski et al. '839, Oldakowski '018 and/or Burenkov '809 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,


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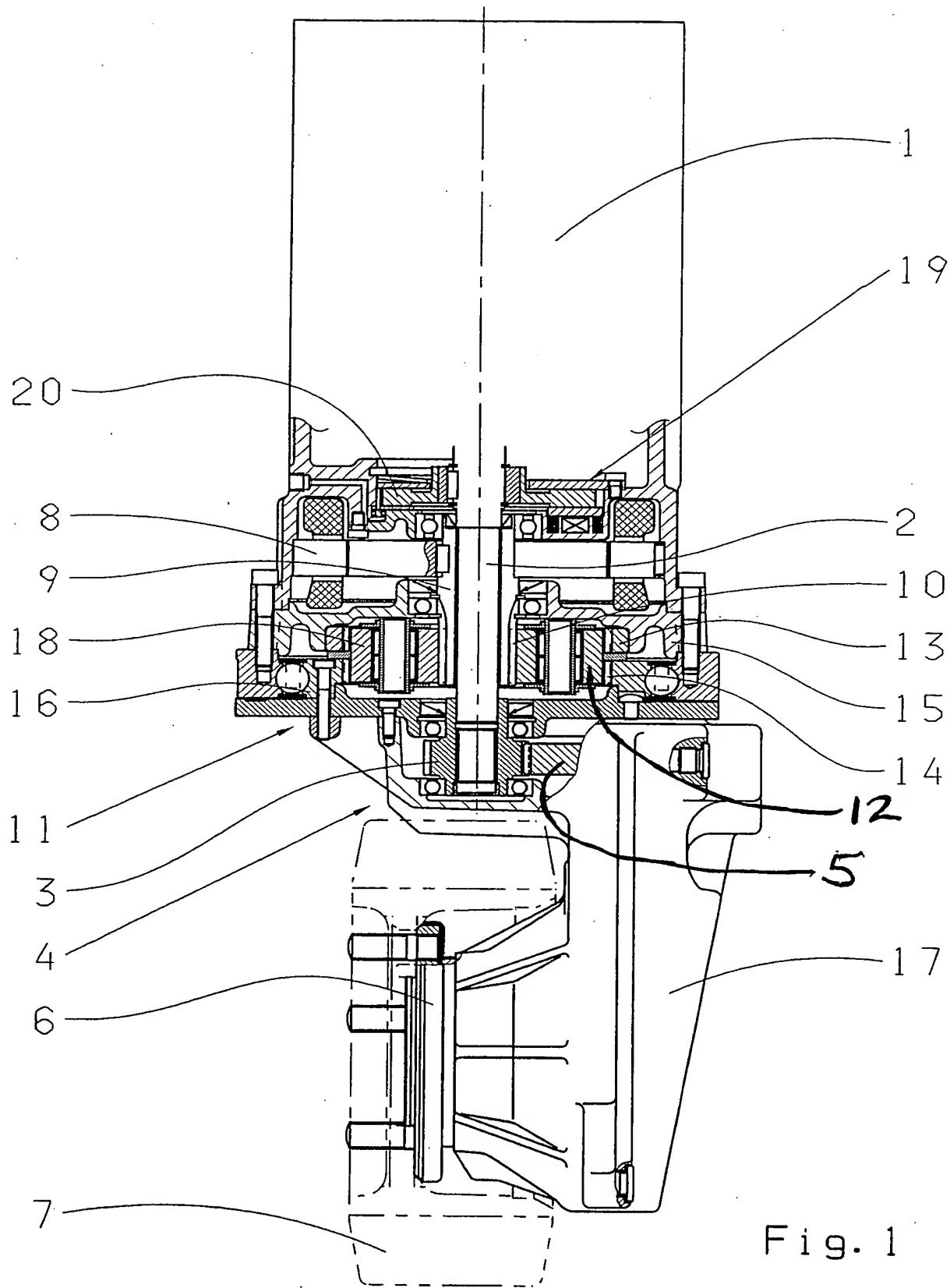


Fig. 1

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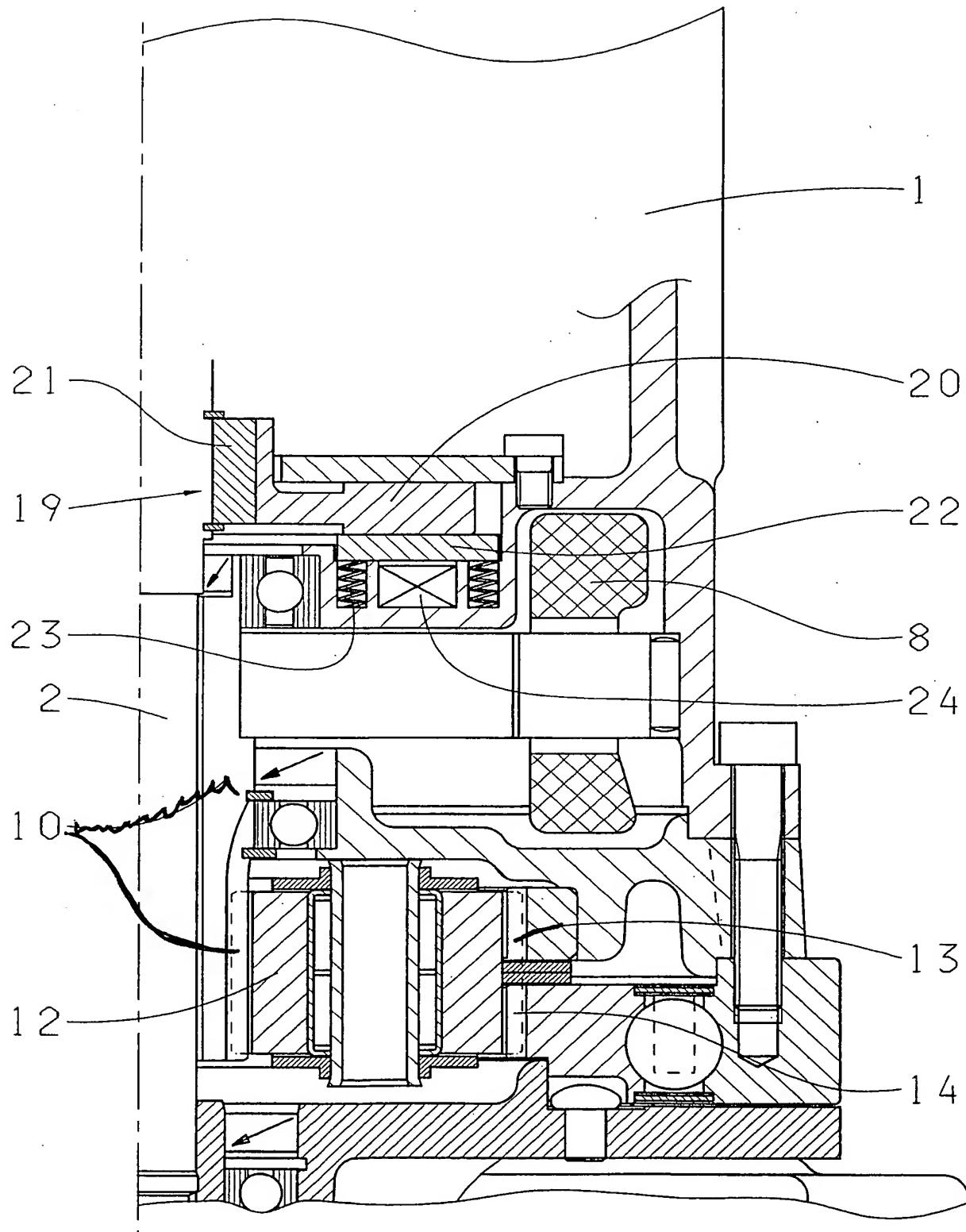


Fig. 2

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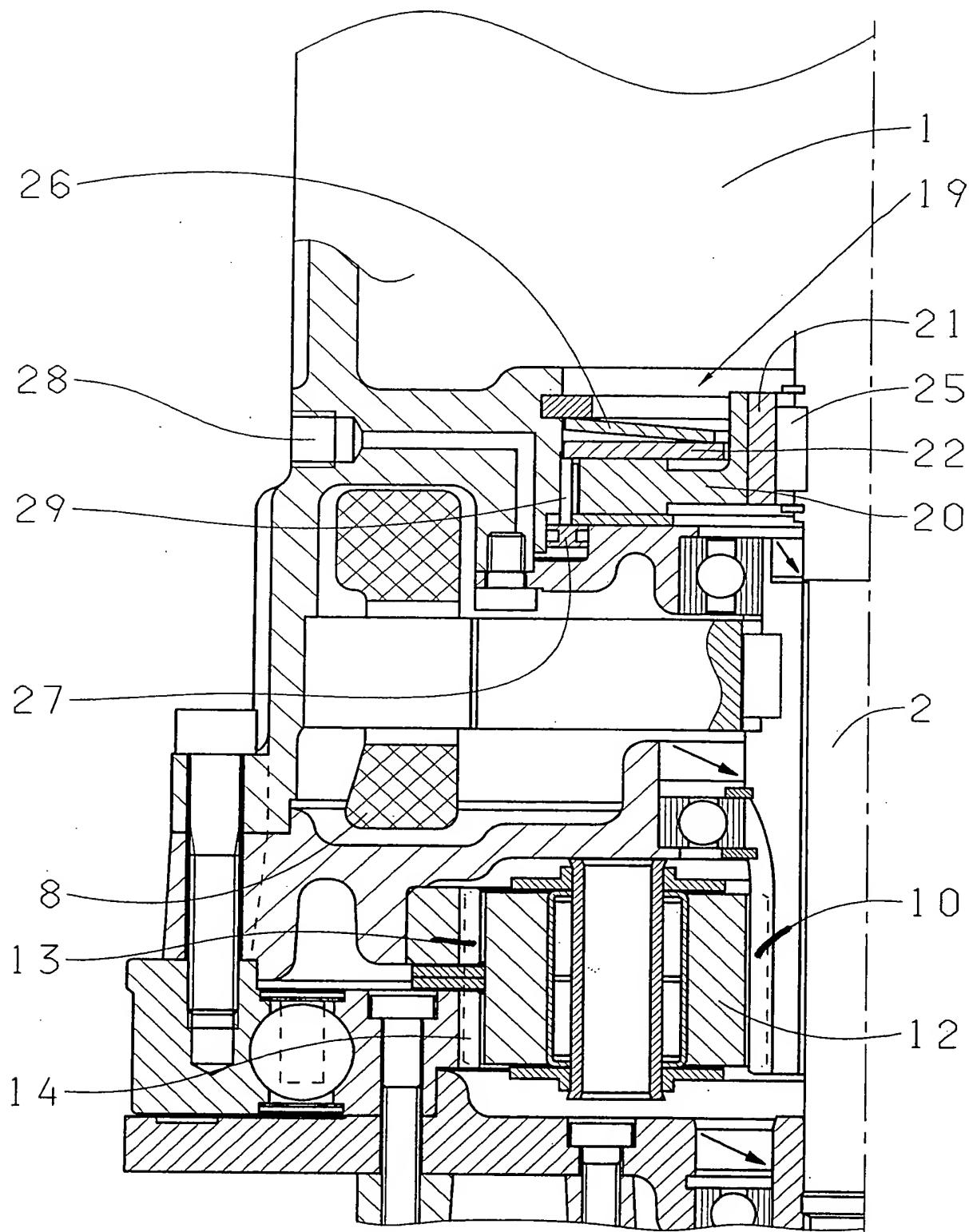


Fig. 3

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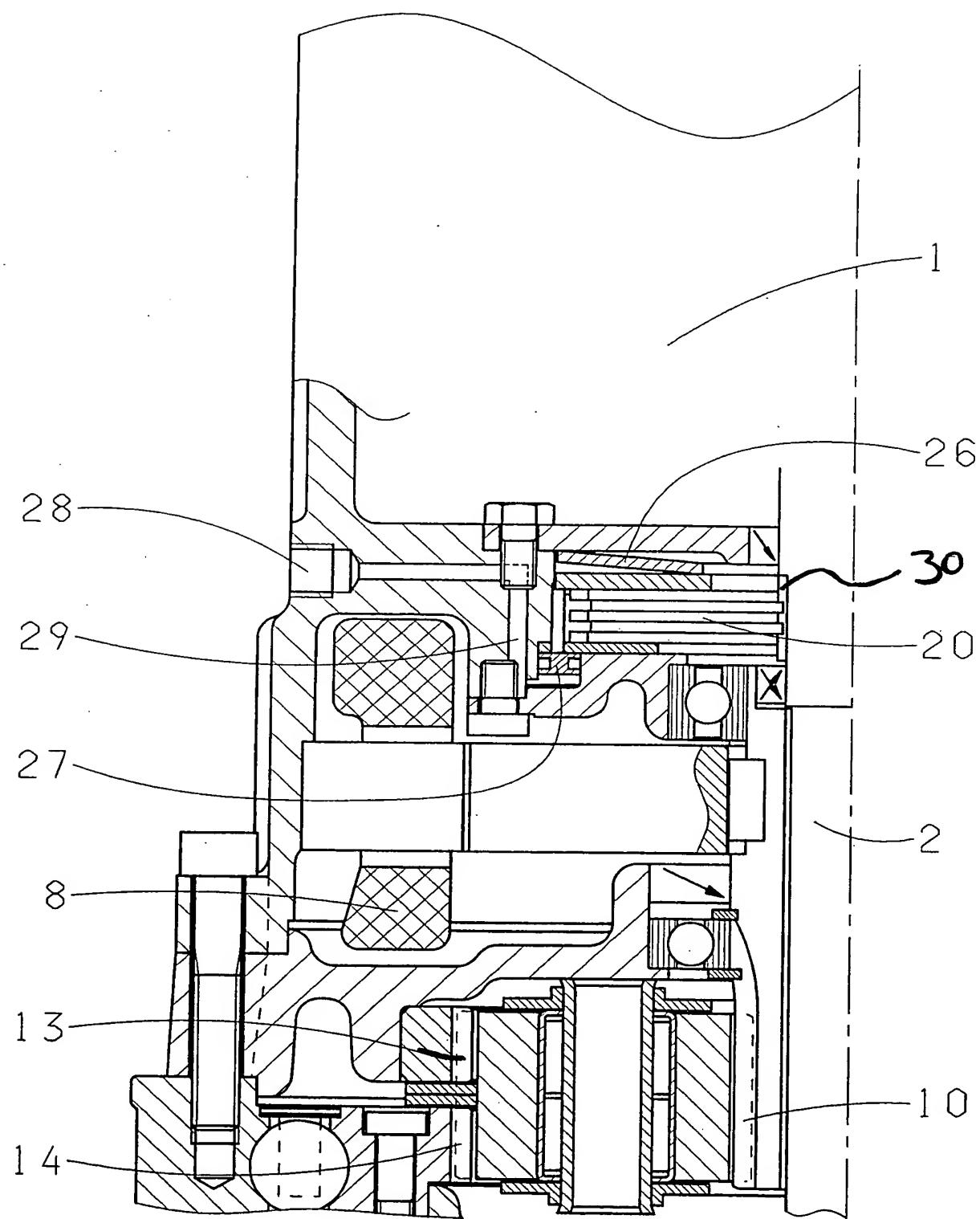


Fig. 4

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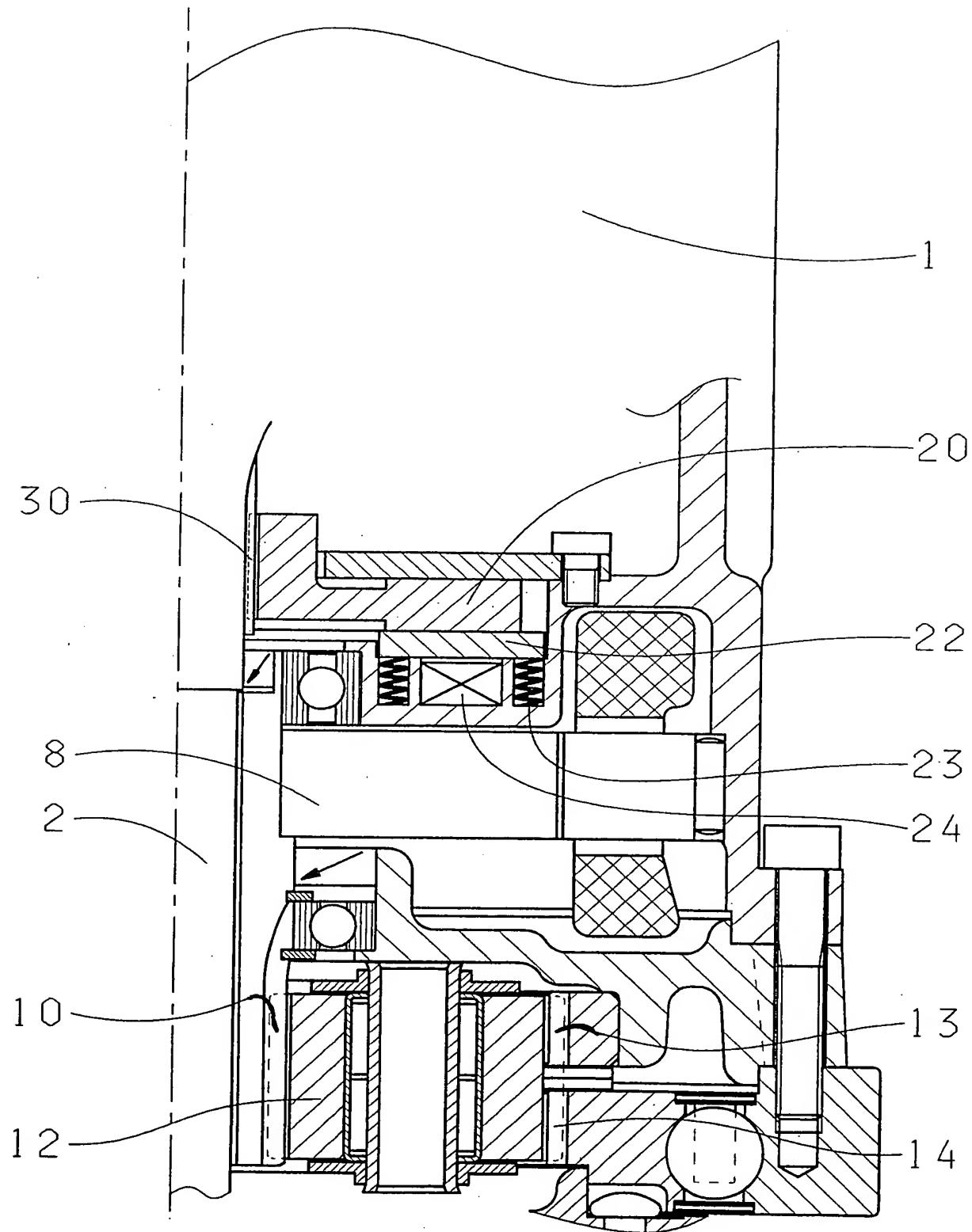


Fig. 5